

CITY OF FREDERICK  
BOARD OF ZONING APPEALS  
PROJECT STAFF REPORT

November 21, 2011

**PROJECT INFORMATION**

**AGENDA ITEM:** A.  
**NAME OF PROJECT:** T Mobile – Butterfly Lane Water Tank Co-location  
**TYPE OF PROJECT:** Conditional Use  
**CASE NUMBER:** ZBA11-618CU

**OWNER:** City of Frederick  
**APPLICANT:** T Mobile Northeast LLC  
C/o Mr. Nathan Campbell  
**PROJECT ADDRESS:** 6262 Butterfly Lane  
**PHONE:** (410) 710-8674  
**ZONING:** Institutional (IST)

**REVIEW BY:** Gabrielle Dunn  
**DATE:** November 15, 2011

**PROPOSED ACTION:** The Applicant is requesting approval to expand the existing telecommunications facility located on a City owned water tower in accordance with Section 866 of the Land Management Code.

**BACKGROUND INFORMATION**

The Applicant is requesting approval to expand the existing T-Mobile telecommunications facility located on the subject property by adding one additional antenna to the water tower at this time, securing approval for the placement of a second new antenna, and installing a new 25' x 5' concrete pad upon which two existing equipment cabinets will be relocated and two new cabinets will be installed.

In 1995, the Zoning Board of Appeals approved a special exception (now deemed a conditional use) for the placement of nine telecommunications antennas on the Butterfly Lane water tower (ZBA95-72). Under, the 1986 Zoning Ordinance, which was in place at that time, ZBA approvals became void one year from the date of the approval unless the use was established in accordance with the approval. There are currently only six antennas mounted to the handrail surrounding the tank and based on the expiration provisions and the failure to move forward with the maximum number of antennas authorized under the previous approval, new approvals are required for the work proposed at this time.

The existing City-owned water tower is situated on the north side of Butterfly Lane on a parcel that is slightly less than one acre in size. The property is currently zoned Institutional (IST) and is surrounded on the north, east, and west by properties that are zoned R12 and to the south by the R4 zoning district. The existing water tower is 139' in total height.

As noted, the proposed antennas will be mounted similarly to the existing antennas along the handrail surrounding the tank which is approximately 111' from grade. The top of the antenna's themselves will be at a height of approximately 113'. As noted, there are currently six antennas mounted along the handrail and the Applicant has immediate plans to install one additional antenna. The Applicant is requesting approval for the placement of a second antenna in the future. Under Section 312 of the Land Management Code (LMC), *Zoning Board of Appeals Decisions*, a decision of the Board becomes void two years from the date unless a zoning certificate is issued.

Currently, there are three equipment compounds on the property –one belonging to the Applicant, one belonging to AT&T, and a third belonging to Sprint. T-Mobile is proposing to relocate their equipment pad from immediately below the water tower to a location to the west of the tower, approximately 4 ½' from the northern property line.

#### **STAFF COMMENTS & ANALYSIS**

In accordance with Section 308 of the LMC, the Zoning Board of Appeals may authorize conditional uses only when the Board finds that the following conditions are met:

**1. The proposed use is in harmony with the purpose and intent of the Comprehensive Plan and this Code.**

One of the express purposes of Section 866 of the LMC is to ensure that opportunities for co-location are exhausted prior to the establishment of new telecommunications facilities. Subsection 866(a)(5) specifically states that no new telecommunications facility may be established if there is a technically suitable space available on an existing communications tower and requires the applicant to document that there are no existing water towers, electric transmission lines, or athletic lighting structures which may be used as an alternative as well. Accordingly, Staff concludes that the proposed co-location is in harmony with the purpose and intent of the LMC provisions governing telecommunications facilities.

Staff also finds the request to be in harmony with policies of the 2010 Comprehensive Plan, specifically:

Economic Development Policy 4, Maintain adequate infrastructure for planned business growth.

Implementation Strategy 7: Coordinate with service providers to ensure reliable, redundant and high-quality electric power, telecommunications, fiber optics and broadband services.

In general, the Land Use Element of the Comprehensive Plan also advocates for development that is compatible with the nature and character of existing and planned communities. Based on the previously established telecommunications facilities at this location and the marginal impacts that the new equipment will have on the surrounding communities, as documented further through compliance of the regulations, Staff finds that the proposed development is in harmony with this purpose of the Comprehensive Plan.

**2. The characteristics of the use and its operation on the property in question and in relation to adjacent properties will not create any greater adverse impact than the operation of any permitted use not requiring conditional use approval.**

By their very nature, conditional uses have the potential to generate greater impacts on adjacent properties than those uses otherwise permitted by "right." In other words, had the legislature not perceived those use classified as "conditional" to generate greater potential adverse impacts, thereby necessitating compliance with more stringent regulations, they would have otherwise deemed them permitted "by right." With regard to this criterion, the ZBA should consider the proposed co-location and how its use in this particular location does or does not generate any greater adverse impact when compared to its establishment in another location.

When comparing the proposed co-location at this site to the establishment of a new facility at another site, Staff finds the proposal will generate fewer adverse impacts. As noted above, there are already existing carriers with telecommunications equipment mounted to the water tower and associated ground equipment, including the Applicant's. The proposed antennas will be mounted in a manner similar to the existing antennas, will be painted to match the background of the water tower, and will be of an equivalent height to existing antennas. As such, Staff concurs with the Applicant that no greater impact will be generated by the proposal.

**3. That the proposed activity will comply with all conditions and requirements set forth in this Code, including any specific standards established in Article 8.**

The specific provisions for the establishment of telecommunications facilities are outlined in Article 8, Section 866 of the Land Management Code and area as follows:

- (1) The applicant shall provide guarantees as deemed necessary by the Board that the proposed structures will not be a hazard to adjacent properties or constitute a nuisance because of radio interference or other potentially disruptive activity associated with the operation of the tower or antenna.**

The Applicant has provided a statement from a structural engineer, Armor Tower, stating that a structural assessment has been completed and that the site is adequate for placement of the materials as proposed. In addition, the Applicant has furnished a letter from a radio frequency engineer stating that the wireless technology provided by T-Mobile operates in its own exclusive band and is not a source of interference to broadcast receivers or other electronic devices.

- (2) All telecommunication facilities, including extension towers added to existing structures must be set back from all property lines a distance equal to the height of the tower, including the extension, if applicable. This standard shall not apply to city owned water towers, high voltage electric transmission towers, or athletic lighting structures. The Zoning Board of Appeals may modify this setback distance, but not to a distance less than the fall zone of the support structure as demonstrated by a structural engineer licensed in the State of Maryland through submission of a signed and sealed structural analysis or specifications from the support structure manufacturer.**

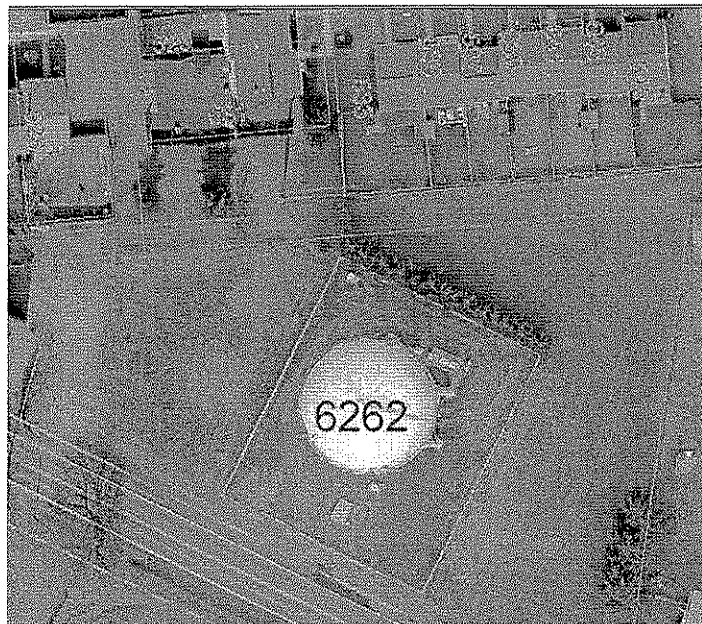
As noted, the proposed colocation is on a City owned water tower and as such, the setback requirements are not applicable.

- (3) Fencing may be provided to secure the telecommunications facility. No barbed wire or razor wire fencing is to be permitted in residential areas. All fences or other structures on the property accessory to the telecommunications facility shall be no closer than fifty (50) feet to a property line, except for city owned water towers, high voltage electric transmission towers, or athletic lighting structures. Any parking space required by § 607 and accessory to the telecommunications facility shall be no closer than fifteen (15) feet from the street or to other a property unless a residentially zoned property is adjacent to the site in which case the distance shall be twenty-five (25) feet. Screening of accessory equipment may be achieved by enclosure in a structure architecturally compatible with the area in which the site is located or by vegetative buffering. Fences and parking areas accessory to the telecommunications facility shall be screened by Level I screening. Level III screening shall be used on sites that are adjacent to residentially zoned property. The Zoning Board of Appeals may modify these setbacks if it is determined that fencing and screening will adequately buffer the facility from adjoining properties and that there will not be a negative impact to an adjoining property.**

As noted, the required setback of 50' for equipment accessory to a telecommunications facility is not applicable to City owned water towers, high voltage transmission towers or athletic lighting structures. The only accessory equipment being proposed by the applicant is a 20' x 5' foot concrete pad which will house four equipment cabinets. The equipment pad will be approximately 4 ½' from the property line to the northwest. There is existing chain link fencing surrounding the tower which will be removed and new chain link fencing will be installed to encompass the new ground equipment (See Sheet

S-1 of the construction drawings). The fencing will be approximately 3' from the property line at its nearest point. The Department of Public Works, who oversees the operations at the tower, has requested the proposed location of the equipment pad so as to improve access to the water tower. As noted above, the existing equipment is located directly beneath the water tower which conflicts with access to the tower for service and maintenance purposes.

With regards to landscaping, there is an existing buffer of plantings along the northern perimeter of the fence and Staff recommends that this buffer be continued along the western perimeter to the extent that it conceals the proposed equipment. Due to the limited planting width, Staff supports the installation of a modified Level I buffer which normally requires five evergreen/deciduous trees per 100 lineal feet within a 6' area. Due to the limited area, Staff supports a reduced 3' wide buffer with more tightly placed plantings in order to achieve the necessary screening. Since the plantings will be installed on City owned property, Staff has consulted with the City Arborist who has recommended that Emerald Green Arborvitae be planted every 5' to 6'. The Arborvitae grow to be 10'-15' in height and have a spread of 3'-4'. Staff is requesting that the Applicant provide a planting plan as a condition of approval and that the planting plan be approved by the City Arborist in concert with the Department of Public Works.



- (4) For antennas and accompanying equipment buildings or cabinets, screening shall be provided as required by the Board.**

As indicated above, Staff requests that additional screening be provided along the western perimeter of the new fencing to the extent that it conceals the proposed new ground equipment. The Applicant has indicated that they are amenable to landscaping as required by the Board. As a condition of approval and with the Board's consent, Staff is recommending the submission of a planting plan to be

reviewed by the Department of Public Works and the City Arborist to ensure that the plantings which will be placed on City property are appropriate and do not conflict with any other operations of the water tower.

- (5) No new telecommunications facility may be established if there is a technically suitable space available on an existing communications tower within the geographic area that the new site is to serve. The applicant shall demonstrate that a diligent effort has been made to co-locate the proposed telecommunications antennas in the GC, PB, MO, M1, M2, PRK and IST districts, and that due to valid considerations, including physical constraints and technical feasibility, no appropriate location is available in those districts. The applicant shall support this demonstration with a map acceptable to the Planning Department showing the area in which it needs to locate a tower(s), and all existing city owned water towers, other existing athletic lighting structures, over sixty (60) feet in height, on public land and communications towers within the at area of sufficient height to support its antenna(s). The applicant shall also describe why those existing city owned water towers other existing athletic lighting structures, over sixty (60) feet in height, on public land and communications towers were not appropriate.**

No further evaluation of potential other locations is needed as the Applicant is proposing to co-locate on an existing facility

- (6) Communications antennas to be co-located on city owned water towers or athletic lighting structures; over sixty (60) feet in height, on public land shall be the color of the background tower or athletic lighting structure in order to minimize visibility. The applicant shall minimize the visibility of antennas and equipment cabinets through careful design, siting and screening where appropriate. The applicant shall provide drawings or photographs showing existing and proposed equipment on the water tower, high voltage transmission towers, or athletic lighting structure. Applicant shall also demonstrate that the antennas or telecommunications facility will not have an adverse effect on the historic vistas of the City. No telecommunications facilities are permitted in the Historic District. A balloon test shall be taken in areas where historic vistas, gateways to the City of other significant City landmarks may be affected by the location of an antenna or telecommunications facility. Photo documentation of the balloon test taken at the site shall be submitted for the Zoning Board of Appeals' review and approval.**

As noted above, the antennas will be mounted to the handrail surrounding the tower and will not exceed the height of the tower itself. In addition, the Applicant has indicated that the antennas will be painted to match the water tower so as to camouflage the equipment. There are no historic vistas potentially compromised by the proposal and therefore, a balloon test was not conducted.

- (7) The applicant shall provide a sealed statement from a structural engineer stating that the water tower, high voltage electric transmission towers or athletic lighting structure is strong enough to support the equipment proposed by the applicant and that the planned installation will be structurally sound.**

As noted above, a sealed statement from Amor Tower has been provided stating that the support structure of the handrail and water tower are capable of supporting the proposed equipment provided that proper placement is adhered to.

- (8) The applicant shall provide a sealed statement from a licensed professional radio frequency engineer stating that the antennas proposed meet the radio frequency safety standards as established by the regulating agency for such antenna(s).**

As noted above, a statement has been provided from a radio frequency engineer stating that the antennas will not create interference. As a final condition of approval, Staff is requesting that the sealed copy of the letter be provided.

- (9) The applicant shall provide a copy of the lease or a letter of intent from the owner of the property (including the appropriate authority of the City, County, State or Federal Government for the subject site if involving a City owned water tower, high voltage electric transmission tower or athletic lighting structures over sixty (60) feet in height on public land). The applicant shall also include the duration of the lease, if the term is not stated within the body of the lease. If the lease does not so require, the applicant shall agree to remove the telecommunications facility or antennas in accordance with the provisions of paragraph (13)D of this Section 866(a). If the site of the proposed telecommunications facility or antenna co-location is located on City Property, the project must be in conformance with the City's Antenna Policy.**

The Mayor has signed off on the necessary agent authorization allowing T-Mobile to pursue the conditional use application. The lease agreement itself will be finalized and reviewed by the Mayor and Board of Alderman after the conditional use approval is granted by the ZBA. The lease agreement must be in place prior to building permit issuance.

- (10) All telecommunications facilities must comply with the applicable local, state, and federal rules and regulations.**

The Applicant has acknowledged that the proposal will remain in compliance with all applicable regulations at all times.

- (11) For purposes of this section, the term "public land" means any property owned by the City, County, State or Federal governments. For purposes of**

this Section 866 (11), the term athletic lighting structure means a lighting structure for an athletic facility. "Telecommunications facility" shall have the meaning set forth in Article 10, Definitions of this LMC. Applicants shall file an agent authorization letter from the responsible government agency identifying its interest in the property and granting the applicant permission to seek the conditional use.

As noted above, an agent authorization signed by the Mayor has been provided.

- (12) A new telecommunications facility may exceed the maximum height permitted within all R districts after a determination by the Zoning Board of Appeals that its visual profile and appearance would make no substantial change in the character of the area, provided, however, that in no event shall the maximum allowed tower height exceed 199 feet.

No new telecommunications support structure is proposed at this time, the existing water tower is 139' in height and the new antennas will not exceed the overall height.

- (13) For any application, the following is required:

- A. The applicant shall publish a notice of the proposal, using a block advertisement of acceptable size which shows a map of the site and a 500 foot radius.

Staff has requested a copy of the advertisement for the case file.

- B. The applicant for a telecommunications facility shall hold an informational meeting in the area of the tower within two weeks of submitting the application. Written notice of such meeting shall be provided to all abutting property owners within a three hundred (300') radius of the property on which the site is located and the relevant NAC as determined by the City.

The Applicant attended the NAC 8 meeting on November 9<sup>th</sup> to present the proposal. Written notice of the meeting was mailed to all applicable property owners and proof of mailing was furnished.

- C. The applicant shall maintain the telecommunications facility in a safe condition.

In the application materials provided, the Applicant has attested to the fact that the facility will be maintained in a safe manner at all times.

- D. The telecommunications facility or antennas co-located on a water tower, high voltage electric transmission tower or athletic lighting structure shall be utilized continuously for wireless communications. In the event the telecommunications facility or antennas co-located on



a water tower, high voltage electric transmission tower or athletic light structure ceases to be used for wireless communications for a period of one year the approval will terminate. The applicant shall remove all wireless communications equipment within 90 days thereafter. In the case of communications antennas co-located on a water tower, high voltage electric transmission tower or athletic lighting structure, the applicant shall remove all wireless communications equipment and return the water tower, high voltage electric transmission tower or athletic lighting structure to its preexisting condition, reasonable wear and tear excepted. In the event the telecommunications facility or antennas co-located on a water tower, high voltage electric transmission tower or athletic lighting structure ceases to be used for wireless communication, the applicant shall notify the Planning Department in accordance with Section 301(e)(1) of the LMC when such use initially ceases.

In the application materials provided, the Applicant has attested to the fact that the equipment will be continuously used for wireless communications and that upon the termination of such use, the equipment will be removed in accordance with this provision.

- E. All new telecommunications facilities shall be designed for co-location, which shall mean the ability of the structure to allow for the placement of antennae for two or more carriers. The ZBA may waive this provision if the co-location will have an adverse impact on the surrounding area.**

This criterion is not applicable as the Applicant is not the owner of the support structure itself but that they are proposing only co-location.

- F. The applicant shall provide a justification as to why this site was selected.**

This site was selected by the Applicant because it is currently being used for their facilities and will result in expanded capacity.

- G. The applicant shall provide a study showing the service area and system coverage.**

The Applicant has provided coverage maps depicting current coverage as well as coverage under the proposed expansion.

- H. The applicant shall provide photo simulations of the telecommunications facility or co-location of antennas proposed on a water tower, high voltage electric transmission tower or athletic**

**lighting structure including equipment areas at the base from at least two directions and from a distance of no more than one mile.**

Photo simulations of the proposed antennas have not been furnished however, on Sheet S-2 of the construction drawings, the proposed antenna location is depicted. From the construction drawings, it is clear that the proposed antenna will not exceed the height of tower nor will it extend horizontally beyond the existing tower, as such, the visual impact will be marginal. Staff does not find that photo simulations are necessary in this instance based on these drawings.

**I. The applicant shall provide an inventory of all existing telecommunication facilities and telecommunication antennas within a one mile radius of the proposed site and document why co-location on an existing telecommunication facility or other structure is not possible.**

This criterion is not applicable as this is a co-location.

**J. The applicant shall file an FAA Form 7460 -1 Notice of Proposed Construction or alteration where the proposed telecommunications facility or telecommunication antenna is within three miles of the Frederick Municipal Airport as required by Federal Aviation Administration Part 77.13.**

The Butterfly Lane water tower is slightly over three miles from the airport "as the crow flies" and as such, a FAA Form 7460-1 is not required for ZBA approval. The City has also confirmed with the Maryland Aviation Authority (MAA) that the proposed additional antennas does not present a risk to the airport.

Lastly, as described in Section 312(e) of the LMC, in the decision making process the Zoning Board of Appeals should consider the following to the extent that they apply to the application:

- 1) The purpose, application, interpretation and standards of the LMC;
- 2) The applicable standards established in Articles 8 and 9 of the LMC;
- 3) The applicable legal standards;
- 4) The orderly growth and improvement of the neighborhood and the community;
- 5) The most appropriate use of land and structures in accordance with the Comprehensive Plan;
- 6) Facilities for sewer water transportation and other services and the ability of the City/County to supply these services;
- 7) The limitations of fire fighting equipment and means of access for fire and police protection;
- 8) The effect of such use on the peaceful enjoyment of people in their homes

- 9) The number of people residing, working, or studying the in the immediate area in order to prevent overcrowding or overconcentration of similar uses;
- 10) The type, character, and use of structures in the vicinity especially where people are apt to gather in large numbers such as schools, churches, theaters, hospitals and the like;
- 11) Traffic conditions including pedestrian facilities and parking facilities;
- 12) The preservation of cultural and historic landmarks;
- 13) The conservation of property values;
- 14) The effect of odors, dust gas smoke fumes vibration glare or noise on surrounding properties;
- 15) The contribution that the building, use or addition would make to towards the deterioration of areas and neighborhoods;
- 16) The objectives of the forest conservation ordinance.

## **PUBLIC NOTICE**

This project met the public notice requirements as stipulated in both Section 301 (b) and Section 866 of the LMC. Notice of the conditional use request was published by the City in the Frederick News-Post on November 4, 2011.

## **STAFF RECOMMENDATION**

### **FINDING OF FACTS**

- The subject property, 6262 Butterfly Lane, is zoned IST.
- Per Section 404, Table 404-1, the *Use Matrix*, telecommunications facilities are permitted as a conditional use in the IST zoning district.
- The subject site is a City owned water tower which is currently being used as a telecommunications facility for several private carriers including T-Mobile.
- The Applicant proposes to install one additional antenna on the site at this time and one additional antenna in the future as well as to relocate existing ground equipment and expand that equipment to ultimately include two new equipment cabinets.
- The Zoning Board of Appeals may grant approval of a conditional use for a telecommunications facility provided that all criteria outlined in Section 308 and Section 866 of the LMC are met.

### **STAFF RECOMMENDATION**

Based upon the finding of facts, Staff supports a modification to Section 866(a)(3) for the screening requirement surrounding fences accessory to telecommunications facilities based on the fact that there is limited planting area between the proposed fencing and the property line and that the location of the new ground equipment pad and fencing is optimal with regards to the operational needs at the water tower.

Staff recommends conditional approval of **ZBA11-618U** finding that:

- 1) The proposed facility will not generate adverse impact on adjacent properties greater than it would if otherwise located.
- 2) Based on the documentation supplied by the Applicant, the proposed antennas and ground equipment will not be a hazard to adjacent properties or constitute a nuisance because of radio interference or other potentially disruptive activity associated with the operation of the tower or antenna.
- 3) A modification to the Level I screening requirement for fencing accessory to telecommunications facilities when adjacent to residential properties is appropriate with regard to the proposed ground equipment compound based on fact that limited planting area is available and that the proposed location is the best suited with regards to access and operations of the water tower.
- 4) The proposed equipment is attached to an existing water tower used for telecommunications purposes.
- 5) Based on the information provided, the Applicant has demonstrated that the proposed antennas will not adversely impact historic vistas, City gateways or other significant City landmarks.
- 6) Per the statement provided, the antennas meet the radio frequency safety standards as established by the regulating agency for such antenna(s).
- 7) The Applicant has provided proof of consent from the City to move forward with this request and that the lease negotiations with the City will be finalized prior to building permit issuance for the antennas.
- 8) The Applicant has provided guarantees that the telecommunications facilities will comply with the applicable local, state, and federal rules and regulations.
- 9) The Applicant has filed an agent authorization letter signed by the Mayor of the City of Frederick identifying its interest in the property and granting the applicant permission to seek the conditional use.
- 10) The proposed antennas will not add additional height to the existing water tower.
- 11) The Applicant has fulfilled all of the public notice requirements mandated under Section 866(a)(13)(A-B).
- 12) The Applicant has indicated that they will maintain the facility in good condition.
- 13) Should the use of the facility for telecommunication purposes cease for a period of one (1) year the approval will terminate and the Applicant is responsible for the removal within 90 days of the termination of use.

Approval is conditioned upon:

- 1) The approval of a planting plan by the City Arborist and Department of Public Works for the installation of Emerald Green Arborvitae surrounding the location of new ground equipment.

# - - T - - Mobile -

September 8, 2011

Ms. Gabrielle Dunn  
Current Planning Division Manager  
City of Frederick Planning Department  
140 W. Patrick Street  
Frederick, MD 21701

RE: WAN061 – Radio Frequency Engineering Certification

This is to certify that the proposed modifications to T-Mobile site 7WAN061A, an existing 140' tall water tank located at 6262 Butterfly Lane in City of Frederick will not interfere with or obstruct any two-way radio or point-to-point microwave communications systems, if the frequencies used by the city are not part of the spectrum allocated to T-Mobile by the Federal Communications Commission.

T-Mobile wireless broadband telecommunications facilities operate in their own exclusive bands and are not a source of interference to broadcast receivers or other electronic devices. T-Mobile site 7WAN061A is operating with transmit frequencies at 1965-1975 MHz (GSM) & 2135-2145 MHz (UMTS), and receive frequencies at 1885-1895 MHz (GSM) and 1735-1745 MHz (UMTS). The maximum effective radiated power is 602 W (GSM) and 758 W (UMTS). The current antenna RAD Center is 111 feet. When the proposed modifications are complete, the site will have a total of 7 antennas (with rights to one additional future antenna) with a gain of 16.5 dBi. The measured output power of the radio transmitter is 20 watts.

T-Mobile wireless broadband telecommunications systems consist of fixed, interconnected base stations, which both receive and transmit to mobile transmitting and receiving devices operated by subscribers. The systems not only communicate with themselves, but also interconnect with local wired telephone facilities. Each base station is designed to provide interference-free service within a portion of the entire area authorized by the FCC and assigned to a particular carrier. This site has been previously evaluated and found to be in compliance with all non-interference requirements.

I hope this will answer any questions that you may have, however if you need any additional information please contact me.

  
Ryan M. Conaway  
T-Mobile Senior RF Engineer  
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